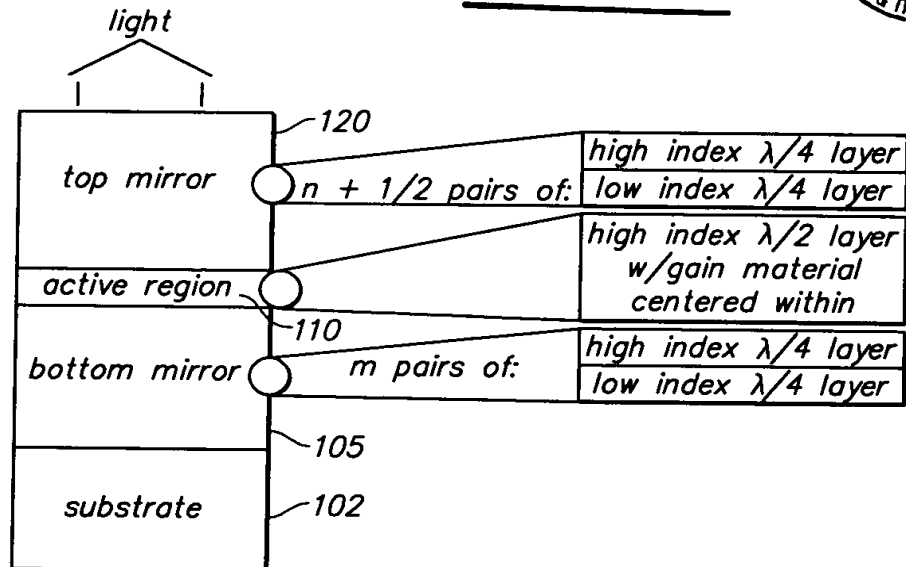
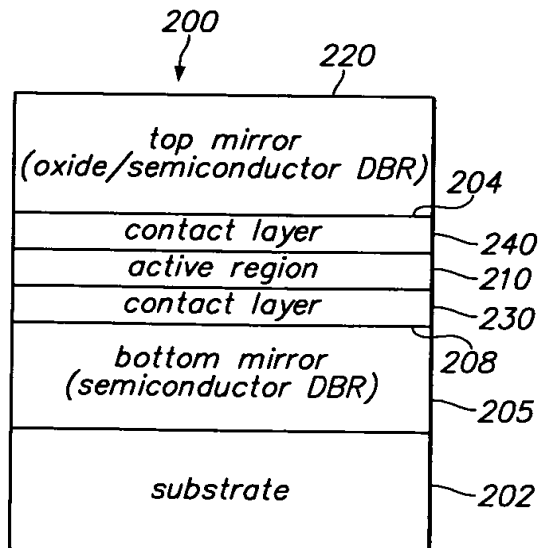


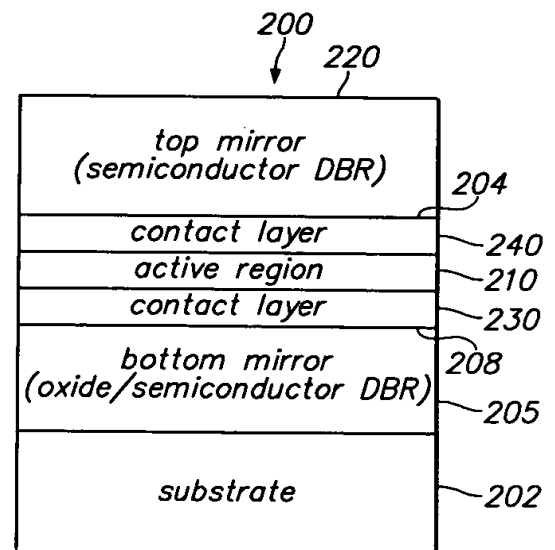
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**FIG. 1** (PRIOR ART)



**FIG. 2A**



**FIG. 2B**

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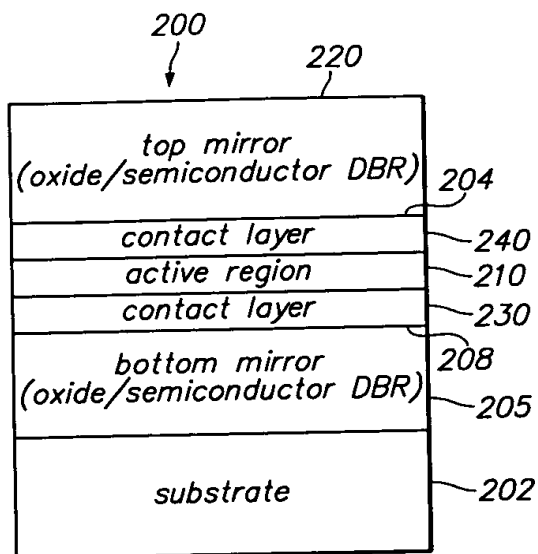


FIG. 2C

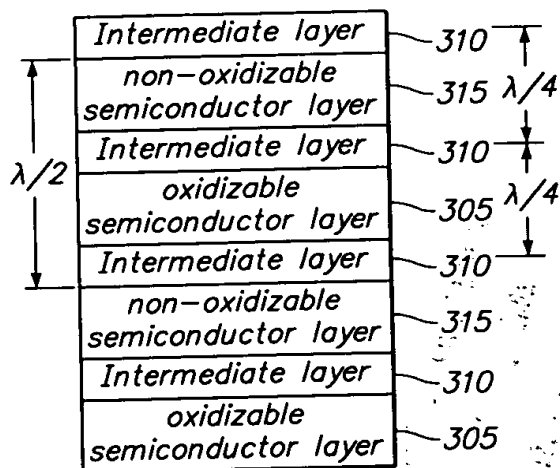


FIG. 3

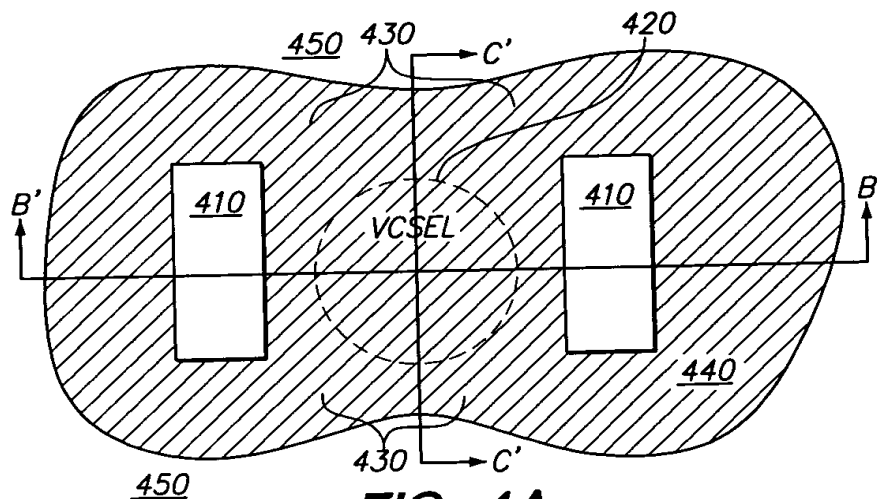


FIG. 4A

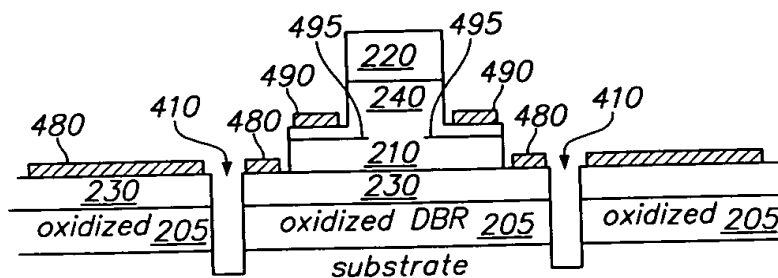
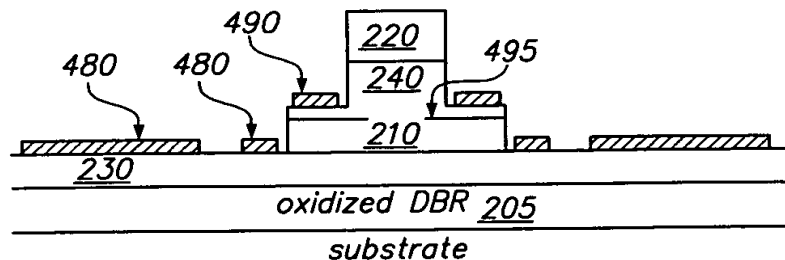
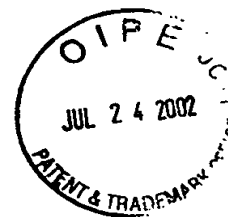


FIG. 4B

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**FIG. 4C**

240	Top DBR mirror	220	
	p+-GaAs 505	$\lambda/4$	
	p-GaAs	510	$\lambda/4$
	AlGaAs current aperture layer	515	
mode control layers & active region			
230	AlGaAs current aperture layer	545	$\lambda/2$
	n+ GaAs	540	$\lambda/4$
	Bottom DBR mirror	205	
	substrate	202	

**FIG. 5A**

240	Top DBR mirror	220	
	p+-GaAs $\sim 1-3 \times 10^{18} \text{ cm}^{-3}$	505	$\lambda/4$ thickness
	AlGaAs current aperture layer	515	$\lambda/4$
	p-GaAs	510	
mode control layers & active region			
230	AlGaAs current aperture layer		$\lambda/4$
	n+-GaAs	540	
	Bottom DBR mirror	205	
	wafer substrate	202	

**FIG. 5B**

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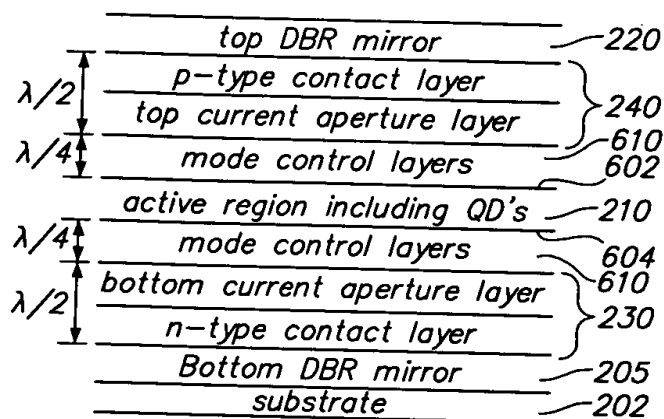


FIG. 6A

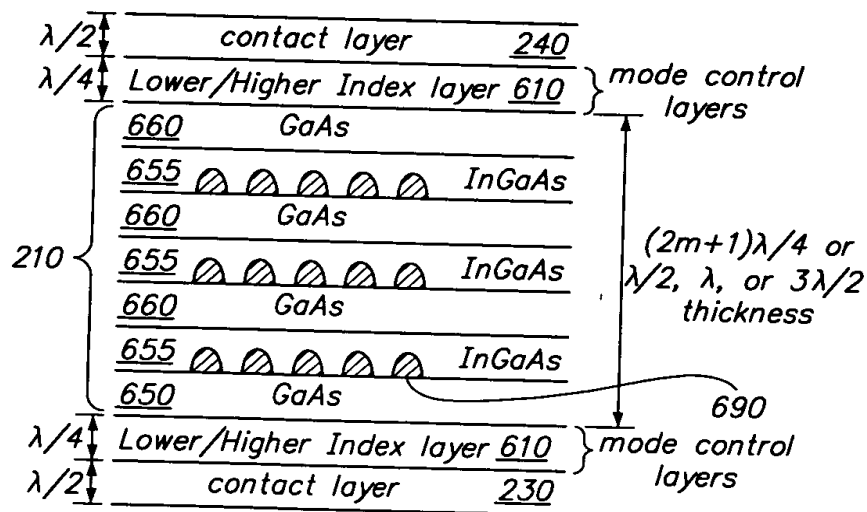


FIG. 6B

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220	GaAs	92nm, 5x	
	Al <sub>0.2</sub> Ga <sub>0.8</sub> As	10nm, 5x	
	AlAs	213nm, 5x	
	Al <sub>0.2</sub> Ga <sub>0.8</sub> As	10nm, 5x	
240	GaAs, p <sub>318</sub>	92nm	p-contact
	Al <sub>0.2</sub> Ga <sub>0.8</sub> As, p <sub>1017</sub>	107nm	Mode Control
	GaAs, p <sub>117</sub>	71nm	p-contact
	Al <sub>0.8</sub> Ga <sub>0.2</sub> As, p <sub>1017</sub>	50nm	Current aperture
210	Al <sub>0.2</sub> Ga <sub>0.8</sub> As	12nm	grade for current aperture
	GaAs	20nm	Active
	GaAs	10nm, 3x	600°C Active
	GaAs	0.8nm, 3x	Active
	In <sub>0.15</sub> Ga <sub>0.85</sub> As	~8nm, 3x	Active
	InAs	2.4ML, 3x	Active
	In <sub>0.15</sub> Ga <sub>0.85</sub> As	1nm, 3x	510°C Active
	GaAs	159nm	Active
	Al <sub>0.2</sub> Ga <sub>0.8</sub> As, n <sub>1017</sub>	107nm	Mode Control
	GaAs, n <sub>218</sub>	92nm	n-contact
230	Al <sub>0.2</sub> Ga <sub>0.8</sub> As	10nm, 8x	
	AlAs	213nm, 8x	
	Al <sub>0.2</sub> Ga <sub>0.8</sub> As	10nm, 8x	
	GaAs	92nm, 8x	
205	Al <sub>0.2</sub> Ga <sub>0.8</sub> As	10nm	
	AlAs	213nm	
	Al <sub>0.2</sub> Ga <sub>0.8</sub> As	10nm	
	GaAs	200nm600C	
GaAs N+2" 1-side		Tox=620C, 10min	

FIG. 7

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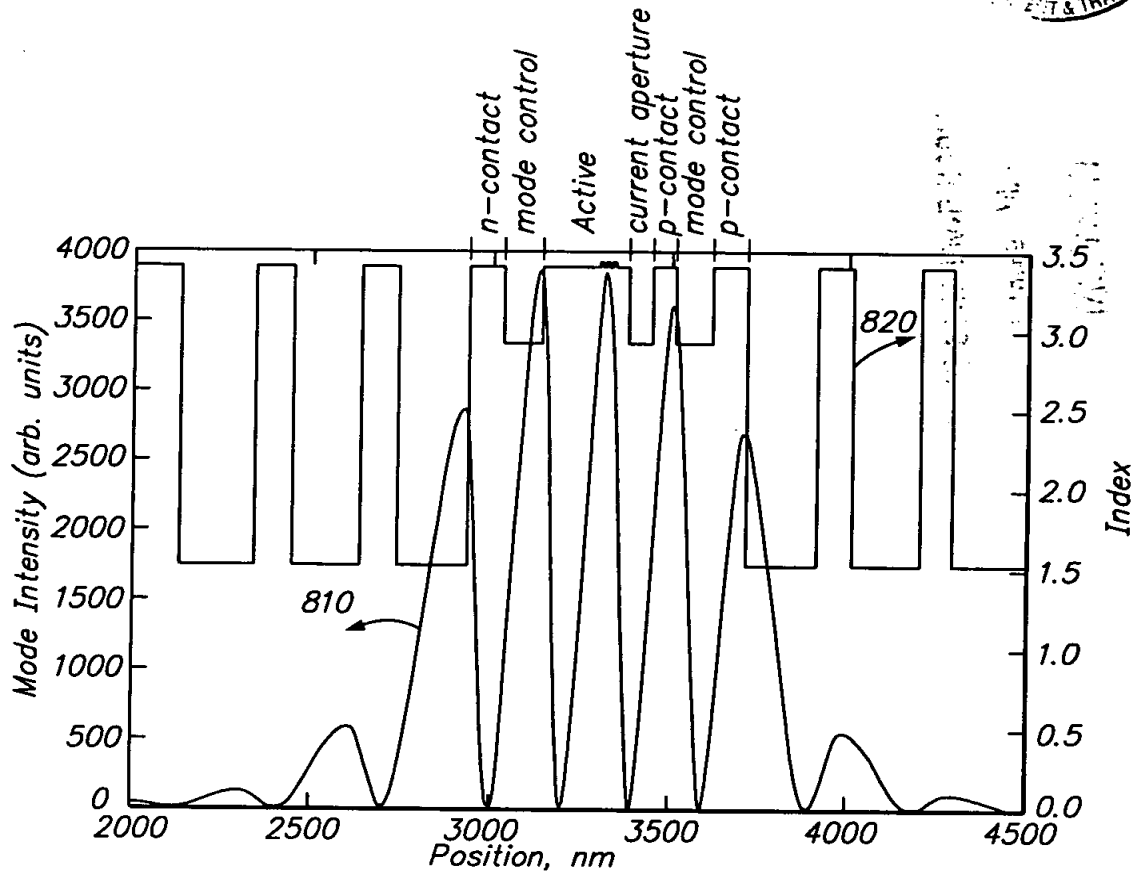


FIG. 8

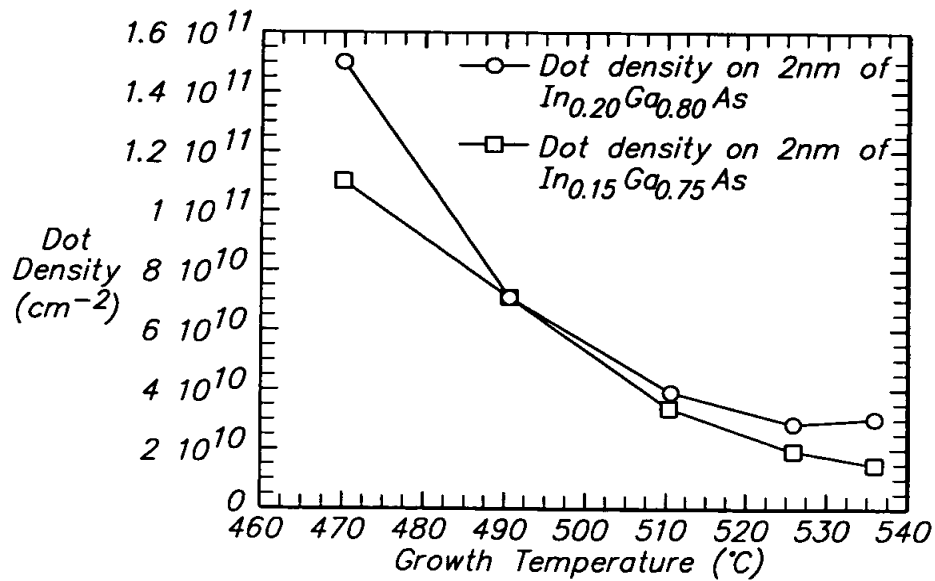


FIG. 9

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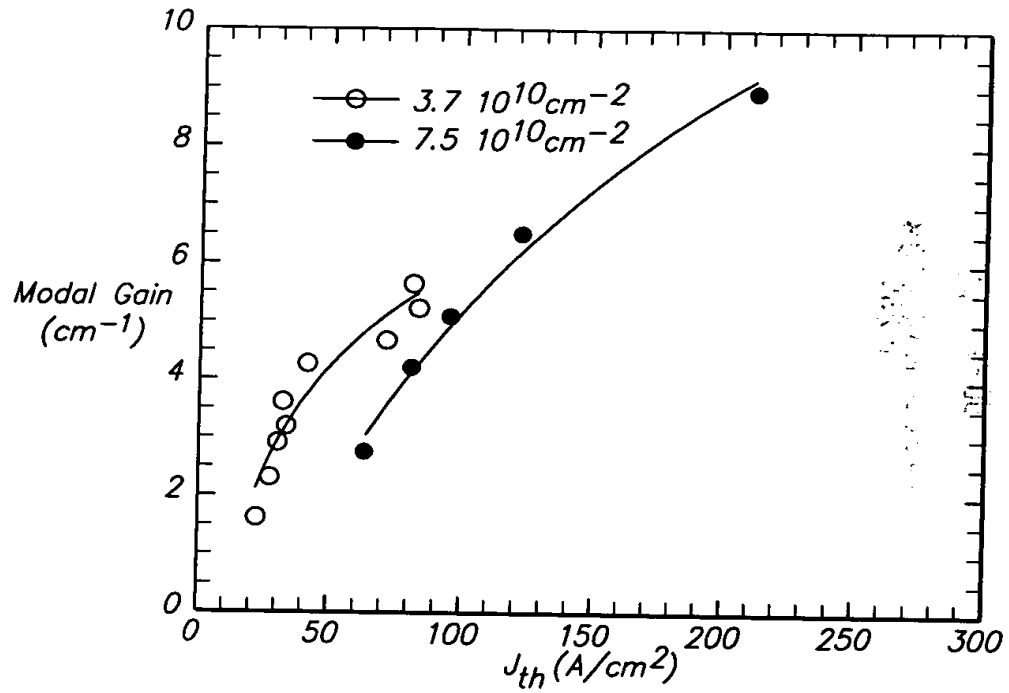


FIG. 10

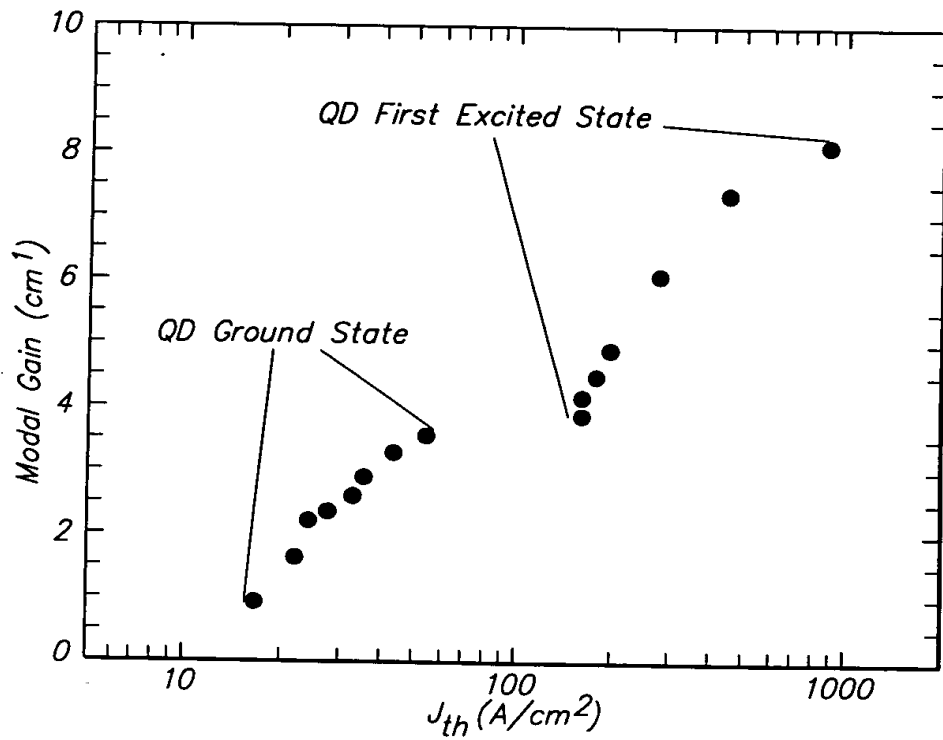
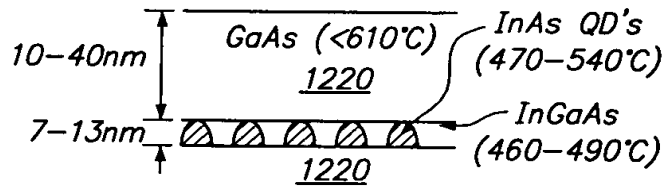
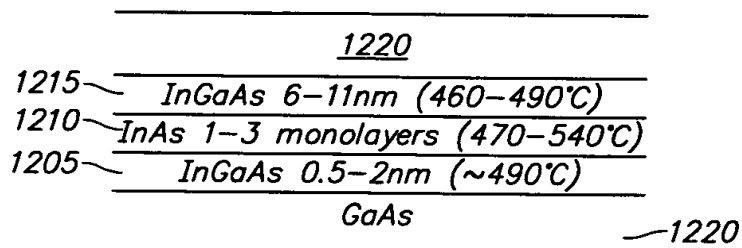


FIG. 11

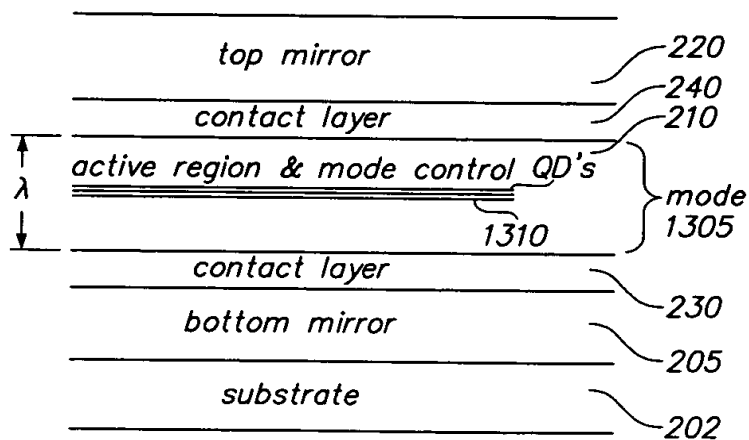
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**FIG. 12A**



**FIG. 12B**

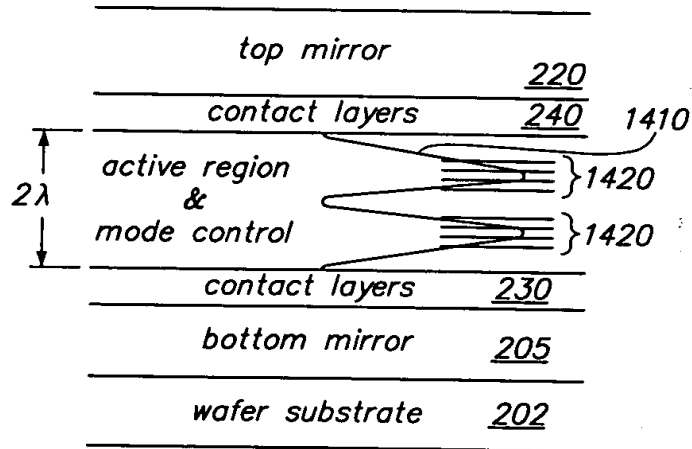


**FIG. 13**

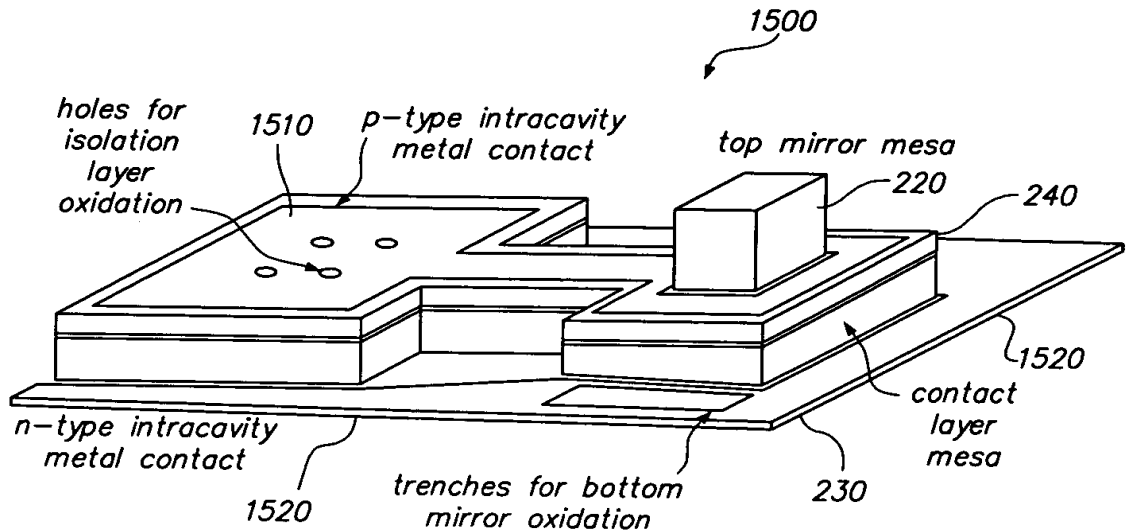




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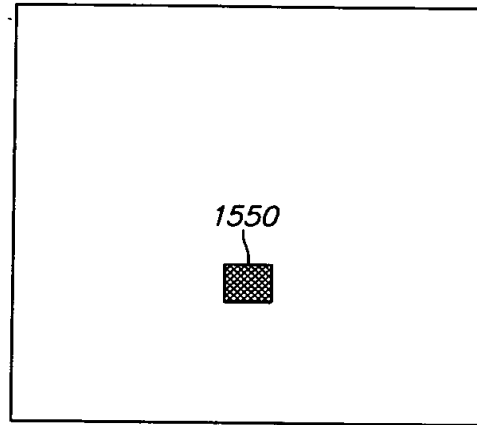


**FIG. 14**

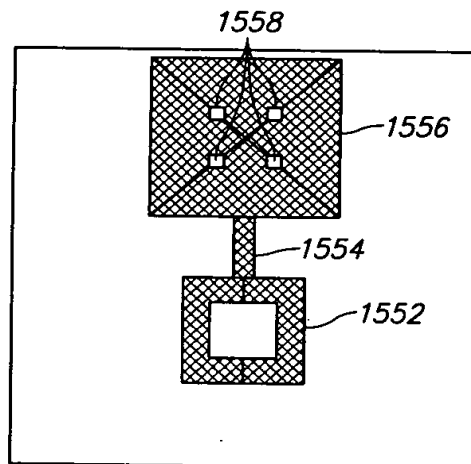


**FIG. 15A**

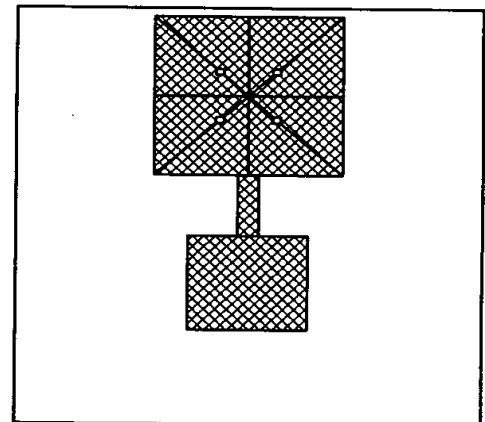
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**FIG. 15B**



**FIG. 15C**

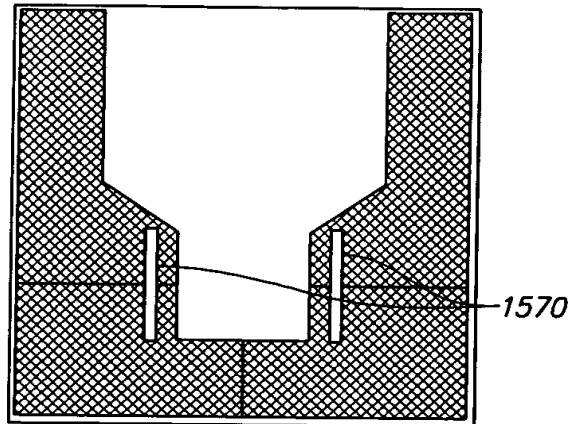


**FIG. 15D**

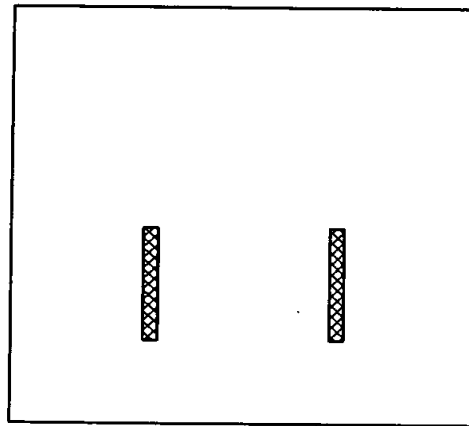
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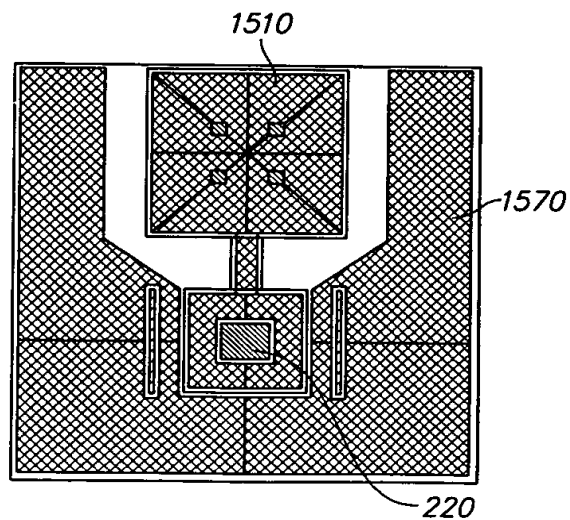
**FIG. 15E**



**FIG. 15F**



**FIG. 15G**



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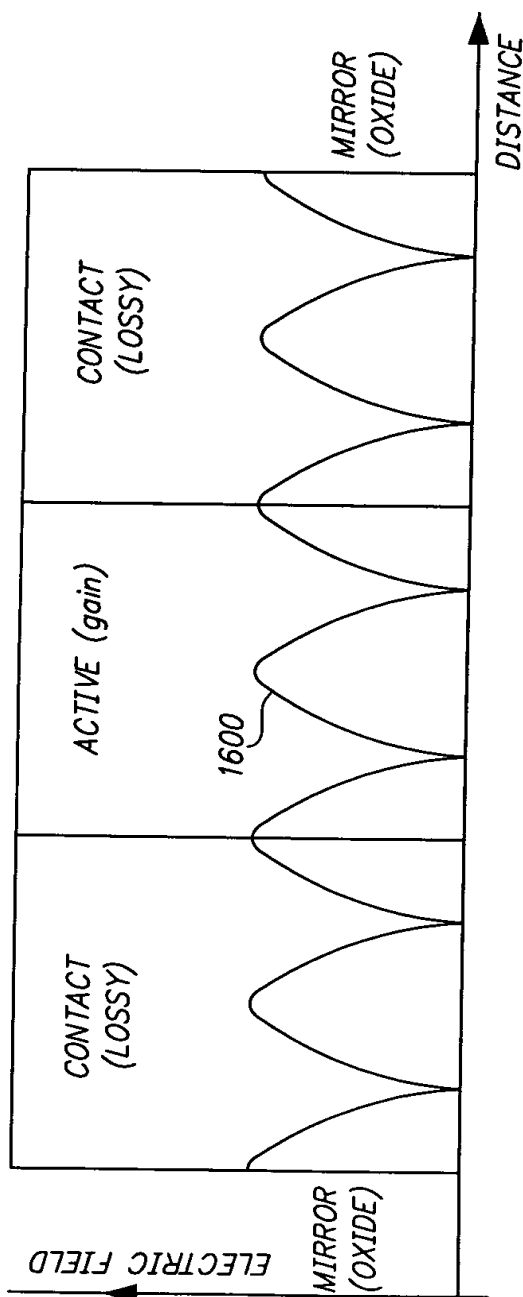
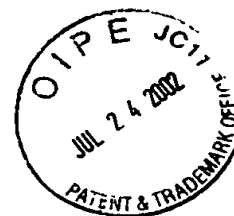


FIG. 16A

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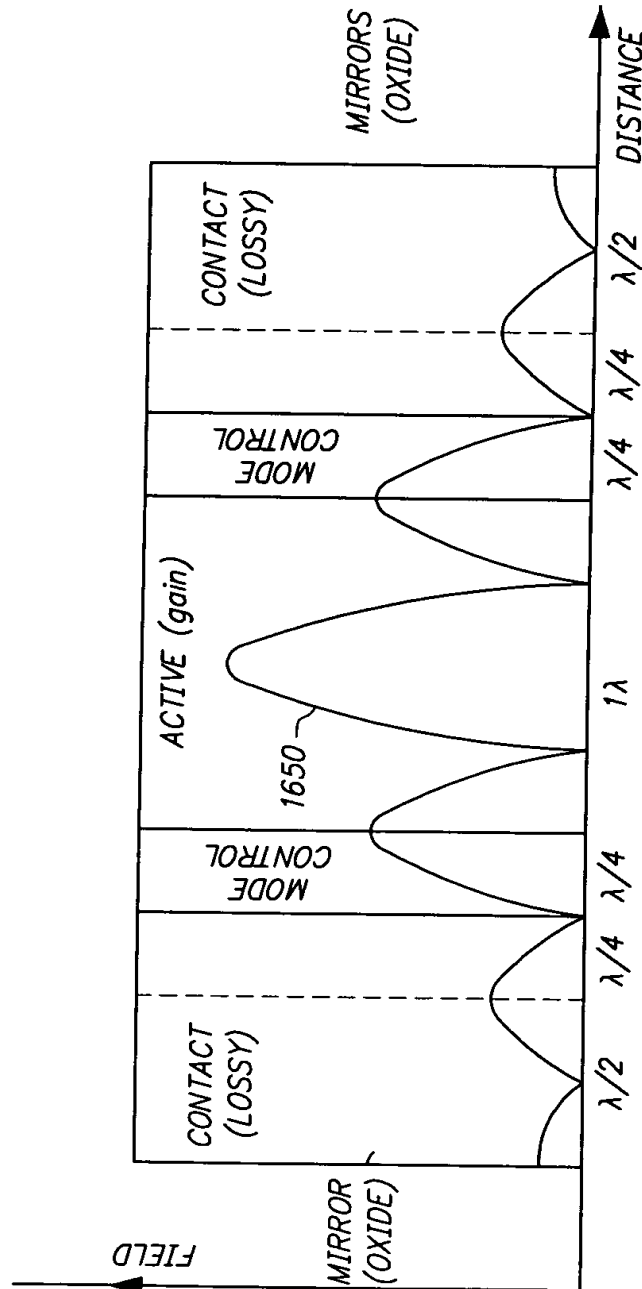


FIG. 16B